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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/065,757	05/24/1993	SHUNPEI YAMAZAKI	0756875	3615
31780	7590	01/10/2006	EXAMINER	
ERIC ROBINSON			KOSLOW, CAROL M	
PMB 955			ART UNIT	
21010 SOUTHBANK ST.			PAPER NUMBER	
POTOMAC FALLS, VA 20165			1755	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/065,757

Applicant(s)

YAMAZAKI, SHUNPEI

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6,8,10,11,39-42 and 45-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45-48 is/are allowed.
- 6) ☒ Claim(s) 6,8,10,11,39-42,49 and 50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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This action is in response to applicant's amendment 12 December 2005. The rejections over canceled claims 18-20, 22, 43 and 44 are withdrawn. The amendment to the specification has overcome the objection to the disclosure with respect to examples 6 and 9 and to minimum number of alkaline earth elements for formula (ii). The amendments to the specification and claims have overcome the 35 USC 112, first paragraph rejections. Applicant's arguments with respect to the remaining objections and rejections have been fully considered but they are not persuasive.

The information disclosure statement filed 12 December 2005 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

Applicants simply supplied the two articles, but not a list of these articles, such as a form PTO-1449.

The disclosure is objected to because of the following informalities: Page 3, lines 4-15 teaches a formula (ii) which can be rewritten as $(A_{2-x-x'}B_xB'_{x'})_{y+y'}Cu_{z+z'}O_{w+w'}$ has a value of $y+y'$ in the range of 4-8 and has a $w+w'$ in the range of 8-20. Lines 18-21 on page 3 give formulas which line 16 states are examples of formula (ii). These examples contain amounts of the rare earth elements and alkaline earth elements which are outside ranges of taught values of $y+y'$ and amounts of oxygen include values which are outside the taught range. Therefore, it is unclear how these formulas are examples of formula (ii). In addition, lines 1-4 teach that the formula (ii) is a subspecies of the formula $(A_{1-x}B_x)_{2-4}Cu_{1-4}O_{4-10}$. It is unclear how formula (ii) is a subspecies of this formula since the amounts of A, B, copper and oxygen are at least twice as much as that

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in $(A_{1-x}B_x)_{2-4}Cu_{1-4}O_{4-10}$. Examples 1-6 state that the powders are mixed in the proportion as required by formula (ii) but the y and y' values in the examples are outside the ranges of y and y' for this formula. Appropriate correction is required.

The amendments to the specification and arguments did not overcome these objections. Applicant's statement that formula (ii) is a reaction mixture of the two parts of the formula is counter to acceptable chemical nomenclature and in fact is repugnant to the definition of a formula. A formula is not a chemical reaction mixture as argued, but a composition of a chemical. The presence of the dot in the formula indicates that the formula is a solid solution of the two parts and thus can be rewritten as indicated by the Examiner, as shown by the fact that the formula for spinel can be written as $MgAl_2O_4$ or $MgO \cdot Al_2O_3$, as shown by the provided Derwent abstracts for JP 2005-166816 and DE 2,125,855. It is noted that the values in resulting formulas in the examples are half the values used in formula (ii). Thus to overcome the above objections, it is suggested to rewrite formula (ii) as $0.5(A'_{1-x}B_x)_yCu_zO_w \cdot 0.5(A_{1-x}B'_{x'})_{y'}Cu_{z'}O_{w'}$.

Claims 6, 8, 10, 11 and 39-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 8, 10 and 11 are indefinite since the claimed specific formulas of $YbBaSrCu_3O_{6-8}$, $YbBa_{0.7}Sr_{0.6}Ca_{0.6}Cu_3O_{6-8}$, $Y_{0.5}Yb_{0.5}BaSrCu_3O_{6-8}$ and $Y_{0.5}Yb_{0.5}BaCaCu_3O_{6-8}$ do not fall within the claimed general formula. The claimed general formula is $(A_{1-x}B_x)_yCu_zO_w \cdot (A_{1-x'}B'_{x'})_{y'}Cu_{z'}O_{w'}$, where $0.1 \leq x < 1$, $0.1 \leq x' < 1$, y and y' are each in the range of 2.5-3.5, z and z' are each in the range of 1.5-3.5 and w and w' are each in the range of 6-8, A is at least one rare earth element and B and B' are each at least one alkaline earth elements. This formula can be rewritten

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as $(A_{2-x-x'}B_xB'_{x'})_{y+y'}Cu_{z+z'}O_{w+w'}$, where $0.1 \leq x < 1$, $0.1 \leq x' < 1$, $0.1 \leq x+x' < 2$, y and y' are each in the range of 2.5-3.5, $y+y'=5-6$, z and z' are each in the range of 1.5-3.5, $z+z'=3-7$, w and w' are each in the range of 6-8 and $w+w'$ is 12-16. $YbBaSrCu_3O_{6-8}$, $YbBa_{0.7}Sr_{0.6}Ca_{0.6}Cu_3O_{6-8}$, $Y_{0.5}Yb_{0.5}BaSrCu_3O_{6-8}$ and $Y_{0.5}Yb_{0.5}BaCaCu_3O_{6-8}$ do not contain the required amounts of oxygen, Yb or Yb and Y and Ba and at least one of Sr and Ca as defined in the general formula.

Claims 41 and 42 are indefinite since they both define A as being one rare earth element in line 11 and a mixture of Y and Yb, two rare earth elements, in line 13. Thus, the claims are internally inconsistent.

Claims 39 and 40 are indefinite since they both define A as being one rare earth element in line 11 and that A includes Yb, in line 13. "Including" is an open-ended transitional term which opens the definition of A to encompass mixtures, but line 11 limits the definition to A to a single element. It is suggested line 13 in these claims be rewritten as "A is Yb,"

Applicants' amendments and arguments did not overcome the rejections over claims 6, 8, 10 and 11. Applicant's statement that formula (ii) is a reaction mixture of the two parts of the formula is counter to acceptable chemical nomenclature and in fact is repugnant to the definition of a formula. A formula is not a chemical reaction mixture as argued, but a composition of a chemical. The presence of the dot in the formula indicates that the formula is a solid solution of the two parts and thus can be rewritten as indicated by the Examiner, as shown by the fact that the formula for spinel can be written as $MgAl_2O_4$ or $MgO \cdot Al_2O_3$, as shown by the provided Derwent abstracts for JP 2005-166816 and DE 2,125,855. It is noted that the values in resulting formulas in the examples are half the values used in formula (ii). Thus to overcome the above rejections, it is suggested to rewrite formula (ii) as $0.5(A'_{1-x}B_x)_yCu_zO_w \cdot 0.5(A_{1-x'}B'_{x'})_{y'}Cu_{z'}O_{w'}$.

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Claims 6, 8, 10 and 11 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 45-48. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

Both sets of claims are directed to superconductive ceramics having the same formulas. The generic formulas claims 6, 8, 10 and 11 do not patentably distinguish these claims from claims 45-48 since the last lines in claims 6, 8, 10 and 11 state the ceramic has the formulas of the ceramics of claims 45-48.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,630,425.

This reference teaches superconductive ceramics having the formula $Ba_{2-y}Y_{1-z}X_{x+y}Cu_3O_x$, where $z+y$ is 0.3-1, X is at least one of Ca, Sr and a rare earth element, x is the amount of oxygen and at least 50 at% of Ba and Y are unsubstituted. Thus if X is at least one rare earth element, $y=0$ and z is 0.03-0.5. The value of x is about 6.5-7.1 (col. 4, lines 40-45). Therefore the reference suggests a superconductive ceramic having the formula $Y_{1-z}X_zBa_2Cu_3O_{6.5-7.1}$, where X can be Gd or Yb and z is 0.3-0.5. The suggested formula encompasses the claimed ceramics. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182

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USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960).

Claims 45-48 are allowable over the cited art of record.

Claims 39 and 40 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The cited art of record do not teach ceramics having the formulas $\text{YbBaSrCu}_3\text{O}_{6-8}$, $\text{YbBa}_{0.7}\text{Sr}_{0.6}\text{Ca}_{0.6}\text{Cu}_3\text{O}_{6-8}$, $\text{Y}_{0.5}\text{Yb}_{0.5}\text{BaSrCu}_3\text{O}_{6-8}$, $\text{Y}_{0.5}\text{Yb}_{0.5}\text{BaCaCu}_3\text{O}_{6-8}$, $(\text{Yb}_{1-x}\text{B}_x)_y\text{Cu}_z\text{O}_w^*(\text{Yb}_{1-x'}\text{B}'_{x'})_{y'}\text{Cu}_{z'}\text{O}_{w'}$, where B is at least one alkaline earth element and includes Ba, B' is at least one alkaline earth element and includes Sr, $0 \leq x < 1$, y is 2.5-3.5, z is 1.5-3.5, w is 6.0-8.0, $0 \leq x' < 1$, y' is 2.5-3.5, z' is 1.5-3.5 and w' is 6.0-8.0; $(\text{Yb}_{1-x}\text{B}_x)_y\text{Cu}_z\text{O}_w^*(\text{Yb}_{1-x'}\text{B}'_{x'})_{y'}\text{Cu}_{z'}\text{O}_{w'}$, where B is at least one alkaline earth element and includes Ba, B' is at least one alkaline earth element and includes Sr and Ca, $0 \leq x < 1$, y is 2.5-3.5, z is 1.5-3.5, w is 6.0-8.0, $0 \leq x' < 1$, y' is 2.5-3.5, z' is 1.5-3.5 and w' is 6.0-8.0; $0.5(\text{Yb}_{1-x}\text{B}_x)_y\text{Cu}_z\text{O}_w^*0.5(\text{Yb}_{1-x'}\text{B}'_{x'})_{y'}\text{Cu}_{z'}\text{O}_{w'}$, where B is at least one alkaline earth element and includes Ba, B' is at least one alkaline earth element and includes Sr, $0 \leq x < 1$, y is 2.5-3.5, z is 1.5-3.5, w is 6.0-8.0, $0 \leq x' < 1$, y' is 2.5-3.5, z' is 1.5-3.5 and w' is 6.0-8.0; and $0.5(\text{Yb}_{1-x}\text{B}_x)_y\text{Cu}_z\text{O}_w^*0.5(\text{Yb}_{1-x'}\text{B}'_{x'})_{y'}\text{Cu}_{z'}\text{O}_{w'}$, where B is at least one alkaline earth element and includes Ba, B' is at least one alkaline earth element and includes Sr and Ca, $0 \leq x < 1$, y is 2.5-3.5, z is 1.5-3.5, w is 6.0-8.0, $0 \leq x' < 1$, y' is 2.5-3.5, z' is 1.5-3.5 and w' is 6.0-8.0.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
January 6, 2006


C. Melissa Koslow
Primary Examiner
Tech. Center 1700